FEMP Designated Product: Lavatory Faucets

Leading by example, saving energy and taxpayer dollars in federal facilities

Purchasing Specifications for Energy-Efficient Products

Legal Authorities

Executive Order 13123 requires federal agencies to reduce water consumption and its associated energy use in their facilities. Federal Acquisition Regulations (FAR) Subpart 23.2 requires that agencies acquire water saving products designated by FEMP as being among the highest 25 percent for equivalent products.

Performance Requirement for Federal Purchases

Product Type	Flow Rate[a]	
	Continuous	Self-Closing[b]
Lavatory Faucets[b]	2.0 gallons per minute or less	0.25 gallons per cycle or less

a) Based on ASME test procedure A112.18.1M-1996, with an inlet water pressure of 60 pounds per square inch (psi).

b) Includes both metered and automatic faucets that shutoff after a preset time, or when the user moves away.

Buying Lavatory Faucets

This purchasing specification applies to faucets used in commercial restrooms and residential bathrooms. When purchasing lavatory faucets from commercial sources, check for models with flow rates (gallons per minute or gallons per cycle) at or below the level shown in the *Performance Requirement* table above.

Agencies must use FEMP-designated performance requirements for all water-consuming product and system procurements including guide and project specifications, and construction, renovation and service contracts. The requirements should also be used in evaluating responses to solicitations.

The federal supply sources for lavatory faucets are the General Services Administration (GSA) and Defense Logistics Agency (DLA). GSA sells faucets through its Multiple Awards Schedule program and online shopping network *GSAAdvantage!* DLA offers them through its Defense Supply Center Philadelphia and online through DoD *EMall*. Note that not all faucets sold through GSA and DLA meet FEMP's performance requirements, and some that do may not be indicted as such.

Agencies can claim an exception to these requirements only through a written finding that no FEMP-designated product is life-cycle cost effective or meets the functional requirements for a specific application.

Buyer Tips

Replacing old lavatory faucets with new low flow or self-closing models is a cost-effective way to save both water and, when hot water is used, energy. Since they are used primarily for hand washing, the faucets are not required to delivery large quantities of water quickly or to have high flow rates. Lavatory faucets that meet the *Performance Requirements* above provide enough water for washing hands. Self-closing faucets can result in significant water savings but typically cost more and require additional maintenance.

Early Replacement

The current federal standard for lavatory faucets is 2.2 gallons per minute (gpm). Faucets predating this standard can use up to 4 gpm. Early replacement can lead to water and energy savings greater than shown in the cost-effectiveness table on page 2. Just replacing the aerator with a low-flow type can yield significant savings. Some aerators can reduce the flow to 0.5 gpm or less, at a fraction of the cost of replacing faucets. Faucets or aerators with flow rates this low should not be installed in kitchen or other sinks where hand washing is not the primary function.

U.S. Department of Energy
Energy Efficiency and Renewable Energy
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

FEMP Designated Product:
Lavatory Faucets

Cost-Effectiveness Example				
Performance	**Base Model[a]**	**Required**	**Best Available[b]**	**Self-closing**
Water Use Only				
Flow Rate	2.2 gpm	2.0 gpm	0.38 gpm	0.25 gpc[c]
Annual Water Use	17,160 gallons	15,600 gallons	2,964 gallons	3,900 gallons
Annual Water Cost	$70	$62	$12	$16
Lifetime Water Cost[d]	$600	$530	$100	$135
With Electric Water Heating				
Annual Energy Use	1,010 kWh	920 kWh	175 kWh	230 kWh
Annual Energy Cost	$60	$55	$10	$14
Lifetime Energy Cost[d]	$460	$420	$75	$105
Lifetime Energy and Water Cost Savings	-	$110	$885	$820
With Gas Water Heating				
Annual Energy Use	53 therms	48 therms	9 therms	12 therms
Annual Energy Cost	$32	$29	$5	$7
Lifetime Energy Cost[d]	$235	$210	$35	$50
Lifetime Energy and Water Cost Savings	–	$95	$700	$650

a) The flow rate of the *Base Model* just meets the current federal standards for faucets, based on ASME test conditions.

b) More efficient products may have been introduced to the market since this specification was published. Performance data for the *Best Available* model was obtained from the January 2006 California Energy Commission Appliance Database (see *For More Information*).

c) Gallons per cycle. The duration of 1 cycle is based on the Americans with Disabilities Act (ADA) specification of 10 seconds with a flow rate of 1.5 gpm.

d) Lifetime Energy or Water Cost is the sum of the discounted value of annual energy or water costs based on average usage and an assumed faucet life of 10 years. Future energy price trends and a discount rate of 3.0% are based on federal guidelines (effective from April, 2005 to March, 2006). Future water and waste water costs are conservatively assumed to increase only at the rate of inflation.

Cost-Effectiveness Assumptions

In commercial facilities, faucets are assumed to be used for 1 minute, 30 times per day, 260 days per year. The faucet water temperature is 80° F. For self-closing faucets, each use requires two on-cycles. Electricity and gas prices are estimated at 6¢/kWh and 60¢/therm, the federal average energy prices in the US. The combined water and wastewater price is $4.00 per 1,000 gallons.

Using the Cost-Effectiveness Example

In the example above, a new faucet just meeting the *Required* flow rate of 2.0 gpm will save $110 in water and energy costs with electric water heating, or $95 with gas heating. Similarly, the *Best Available* model, with a flow rate of 0.38 gpm, saves $885 with electric water heating or $700 with gas water heating. When using a self-closing faucet, the cost savings are $820 with electric water heating and $650 with gas water heating.

What if my Energy or Water Price is different?

FEMP provides a Web-based cost calculator for faucets. Go to http://www.eere.energy.gov/femp/procurement/eep_faucets_showerheads_calc.cfm and enter the rates for natural gas, electricity and water at your facility. The output section will automatically display results that better reflect your energy costs.

March 2006

For More Information:

EERE Information Center
1-877-EERE-INF or 1-877-337-3463
www.eere.energy.gov/femp/procurement/

General Services Administration
(816) 926-6760
www.fss.gsa.gov/
www.gsaadvantage.gov/

Defense Logistics Agency
www.dla.mil/
www.emall.dla.mil/

Defense Supply Center Philadelphia
(800) DLA-BULB or (215) 737-7950
www.dscp.dla.mil/

American Water Works Association
(800) 926-7337
www.waterwiser.org/

California Energy Commission (CEC) has a database of certified plumbing fittings online at http://www.energy.ca.gov/appliances/appliance/excel_based_files/

Contact your local water utility for details about conservation programs and incentives in your area.

Lawrence Berkeley National Laboratory provided market research and life cycle cost analysis in support of this energy efficiency purchasing specification.
(202) 646-7950

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

U.S. Department of Energy
Energy Efficiency and Renewable Energy
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable